EICHER COMMUNICATIONS, INC. Ch. 278A - BETHANY BEACH, DE

MULLANEY ENGINEERING, INC.

Answers to questions contained in F.C.C. Form 301, Section V-B, are incorporated in the following paragraphs and figures.

II. ENGINEERING DISCUSSION:

A. Proposed Location:

The applicant proposes to locate the tower approximately 3.9 miles northwest of Bethany Beach, DE. Figure 1 is a Topographic map showing the proposed site (black & white copy of map shows corner coordinates). The geographic coordinates are:

Latitude: 38° 34′ 21"
Longitude: 75° 06′ 58"

The Eastern Regional Office of the FAA was notified of this proposal on February 8, 1991. Figure 1-A is an Aeronautical map showing the proposed site.

B. Antenna System and Tower:

A dual polarized 3-bay FM antenna will be pole mounted near the top of a new tower with an overall height of 105.8 Meters (347 Feet) AGL (includes lighting). Figure 3 is a sketch of the proposed tower. The antenna has a non-directional power gain of 1.5588 H/V.

The antenna will be fed by 100 Meters (328 Feet) of 1-5/8" coaxial cable, with a rated efficiency of 84.7 percent for this length.

C. Transmitter:

The applicant plans to install a type accepted 4 KW FM transmitter. The transmitter will be operated at 2.3 KW which is within its rated power.

D. Effective Radiated Power:

Giving consideration for the maximum antenna gain, transmitter power and line loss, the maximum Effective Radiated Power is 3.0 KW for the Horizontal and 3.0 KW for the Vertical Component.

E. Auxiliary Power:

The applicant proposes to install two Auxiliary Power Generators (one at their proposed studio site and one at their proposed FM transmitter site) to supply electrical power during local outages.

F. Channel Allocation:

Figure 4 is a channel allocation study from the proposed The proposed site is short spaced under the 6 KW rules to four stations. Three of the stations (WESR, WMGM, & WOCQ) qualify for processing under Section 73.213 in that the Bethany Beach reference point for 278A also fails to meet the new 6 KW spacing to these stations. should be noted that WOCQ has a pending application (9001111B) requesting 6 KW operation. However, asmuchas that application is also short spaced to the Bethany Beach reference point it is defective. Commission determines that a waiver is necessary until WOCQ is dismissed then a waiver is hereby requested. fourth and final short spacing is to WGMS-FM on 278B at Washington, D.C. Since the Bethany Beach reference point exceeds the minimum spacing for 6 KW operation to WGMS this application proposes contour protection. other respects this application is in compliance with Section 73.207(a).

1. Contour Protection - Section 73.215:

Figure 5 is a map and Figure 5-A is a tabulation of the protected 60 dBu and the co-channel interfering 34 dBu contour proposed by this application.

Figure 5-B is a similar tabulations for WGMS-FM except that it is based upon maximum permissible ERP and HAAT at its existing site.

As can be seen, no prohibited overlap occurs. All contours are based upon terrain radials spaced every 10 degrees.

G. Terrain Profile Data & Coverage:

Terrain profile data was extracted from NGDC 30 Second Digitized Terrain Data Base provided out of Boulder, Colorado. The standard eight bearings (every 45 degrees) were used to obtain the proposed HAAT. The 45, 90, & 135 degree radials were taken from the appropriate 7.5' map. The terrain average on the 90 & 135 degree radials was terminated at the waters edge in asmuchas there was no land contained within the 50 micro-volt contour along these radials.

The predicted service contours, as shown in Figure 2 of the attached report, were computed using a mathematical model adapted for computer use of the data shown in Figure 1 of Section 73.333. This is the Commission's computer program TV FM FS REPORT RS-76-01, dated January 1976.

The coverage map (Figure 2) does contain the original latitude and longitude markings as required by the FCC form 301. However, it was impossible to show the original degree indications for these markings due to the scale of the map being used (1:250,000). It is believed that verification of the site location is possible through use of the Topographic Map and Aeronautical Map which is also contained in this application.

Figure 2-A is a tabulation of the distances to the 70 dBu (3.16 mV/M - City Grade) & 60 dBu (1.0 mV/M - Primary) contours in Metric Units (Meters/Kilometers).

H. Terrain Profile to City of License:

The N-135-E radial is the direct path to the City of License. From the proposed site the 3.16 mV/M City Grade Contour will completely encompass the City of License without major terrain obstruction.

I. Coverage Area and Population:

The area contained within the 60 dbu (1.0 mV/m) contour is 994 square kilometers and has been computed mathematically (water area has been subtracted).

The population within this contour is 44,015 persons and was obtained through a computerized analysis of the census designated places population data contained in the 1980 Census.

J. FM Blanketing Contour:

The applicant recognizes its obligation to resolve related interference complaints for a one year period within its 115 dBu "FM Blanketing Contour" as required by Section 73.318 of the FCC Rules.

The radius around the base of the tower in which Blanketing interference is possible is fairly small (see Figure 2-A) and is in a sparsely populated area. Given the height of the tower proposed, no problems are anticipated.

K. Other Services in Area:

There are NO known AM Broadcast Stations within 3.2 kilometers of the proposed site.

There are no known transmission facilities within 60 meters (197 feet) of the proposed antenna.

There are other transmitters within 10 kilometers (6.2 miles) of the proposed site, however, based on the type of transmitter proposed, and the frequency & power involved no intermodulation interference problems with existing transmitting facilities is expected. In the unlikely event some problems would occur, the applicant will investigate and correct such cases in accordance with the Commission's Rules.

L. Environmental Assessment Statement:

The applicant believes its proposal will not significantly affect the environment since it does not meet any of the criteria specified in Section 1.1307 of the rules. Specifically the proposed facility:

- Will <u>NOT</u> be located in an officially designated wilderness area.
- 2. Will NOT be located in an officially designated wildlife preserve.
- 3. Will <u>NOT</u> affect districts, sites, buildings, structures or objects, significant in American history, architecture, archeology or culture, that

are listed in the National Register of Historic Places or are eligible for such listing.

- 4. Will NOT be located in a floodplain.
- 5. Will NOT result in construction that will involve a significant change in the surface features (eg. wetland fill, deforestation or water diversion).
- 6. Will NOT involve the use of high intensity white lights on a structure located in a residential neighborhood, as defined by the applicable zoning laws.
- 7. Will NOT involve the exposure of workers or the general public to levels of radiofrequency radiation in excess of the "Radio Frequency Protection Guide" recommended by ANSI (C95-1-1982).

The following is a more detailed discussion of this protection standard:

a. National Environmental Policy Act of 1969:

In 1969, Congress enacted the National Environmental Policy Act (NEPA), which requires the FCC to evaluate the potential environmental significance of the facilities it regulates and authorizes. Human exposure to Radio Frequency (RF) radiation has been identified as an issue the FCC must consider.

Beginning with the filing of applications after January 1, 1986, broadcast stations will be required to "certify compliance" with FCC prescribed guidelines on human exposure to RF radiation. The FCC is using as its processing guidelines, the American National Standards Institute's (ANSI) RF radiation protection guides (ANSI C95.1-1982). These exposure

EICHER COMMUNICATIONS, INC. Ch. 278A - BETHANY BEACH, DE

MULLANEY ENGINEERING, INC.

limits are expressed in terms of milli-watts per square centimeter.

These exposure limits are time averaged over any six minute period and vary depending upon the frequency involved:

Frequency Range (MHz) ******			Power Density (mW/sq.cm) *****				
0.3	to to	3 30	100 900/(Freq ²)	AM			
30 300 1500	to	300 1,500 100,000	1.0 Freq/300 5.0	VHF UHF	TV TV	£	FM

(same as ANSI standard)

The applicant recognizes that compliance with the above criteria at sites involving multiple AM, FM and/or TV facilities is based upon the contributions of all such facilities. At the site discussed in this application, the only facility that will exist is the proposed FM facility.

FM BROADCAST STATIONS

For FM Broadcast Stations the following formula is used:

$$D = \frac{SQRT(F^2 * [HERP + VERP])}{1.667 * SQRT(PD) * 3.2808}$$

Where:

D = the closest distance in meters that a human should come to an operating antenna (to obtain feet multiply by 3.2808)

HERP = Horizontal ERP in watts (above a dipole)

VERP = Vertical ERP in watts (above a dipole)

PD = highest Power Density in milli-watts/cm2

SQRT = Square Root

Freq = Frequency in mega-cycles/sec. (mHz)

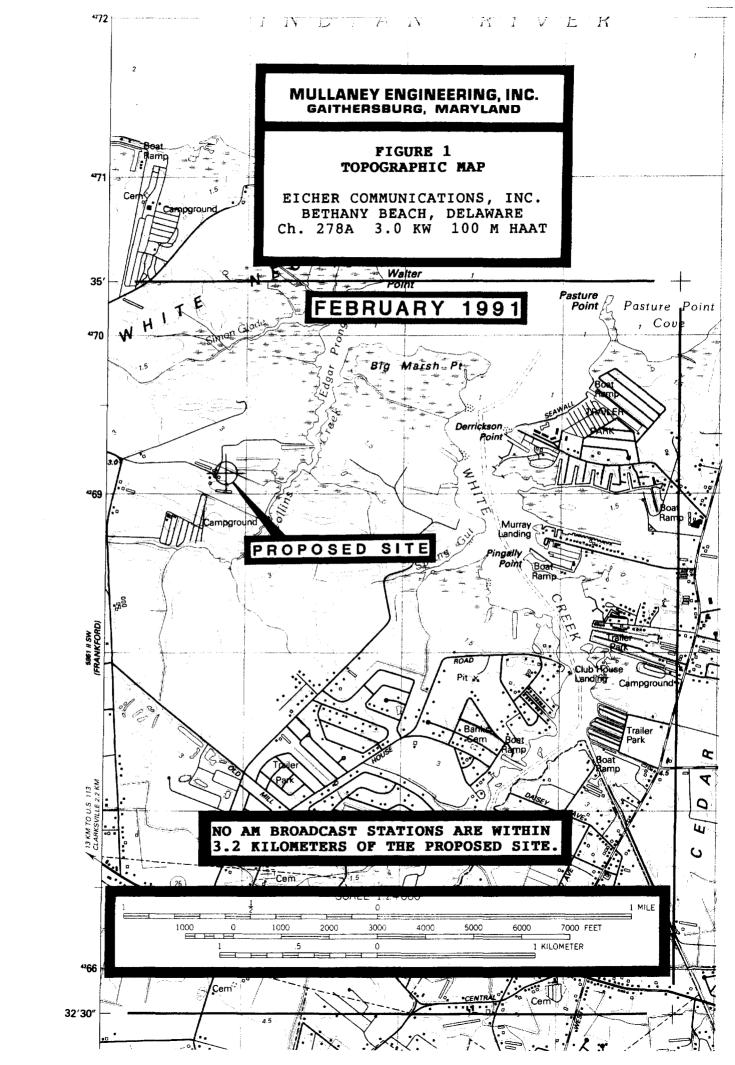
The vertical radiation pattern of the FM antenna specified in this application is very narrow and therefore the power density as seen by an observer on the ground near the base of the tower will be less than 10 percent of the total ERP or 0.3 KW.

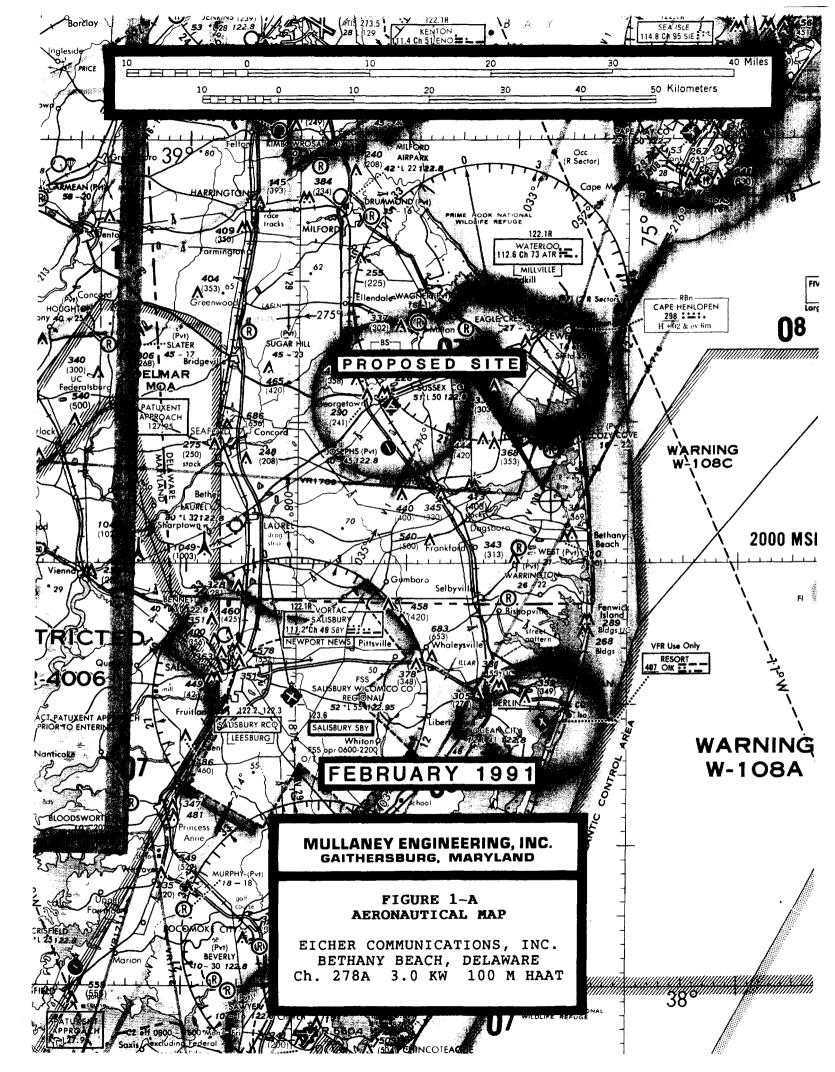
The application of the above equation (assuming maximum ERP), in our case, for a frequency of 103.5 MHz and Power Density of а 1.0 milli-watts results in a minimum distance 14.2 meters (47 feet) from the Inasmuch as the lowest element on the proposed antenna will be approximately 91.4 meters (300 feet) above ground level. it. self-evident that no hazard from radiation will exist to persons at ground level. approximately 2 meters above the ground assuming maximum downward radiation the proposed FM facility contributes 0.0063 of the ANSI standard. With regard to people which need to climb the tower, the tower will be marked by appropriate warning signs to insure safety.

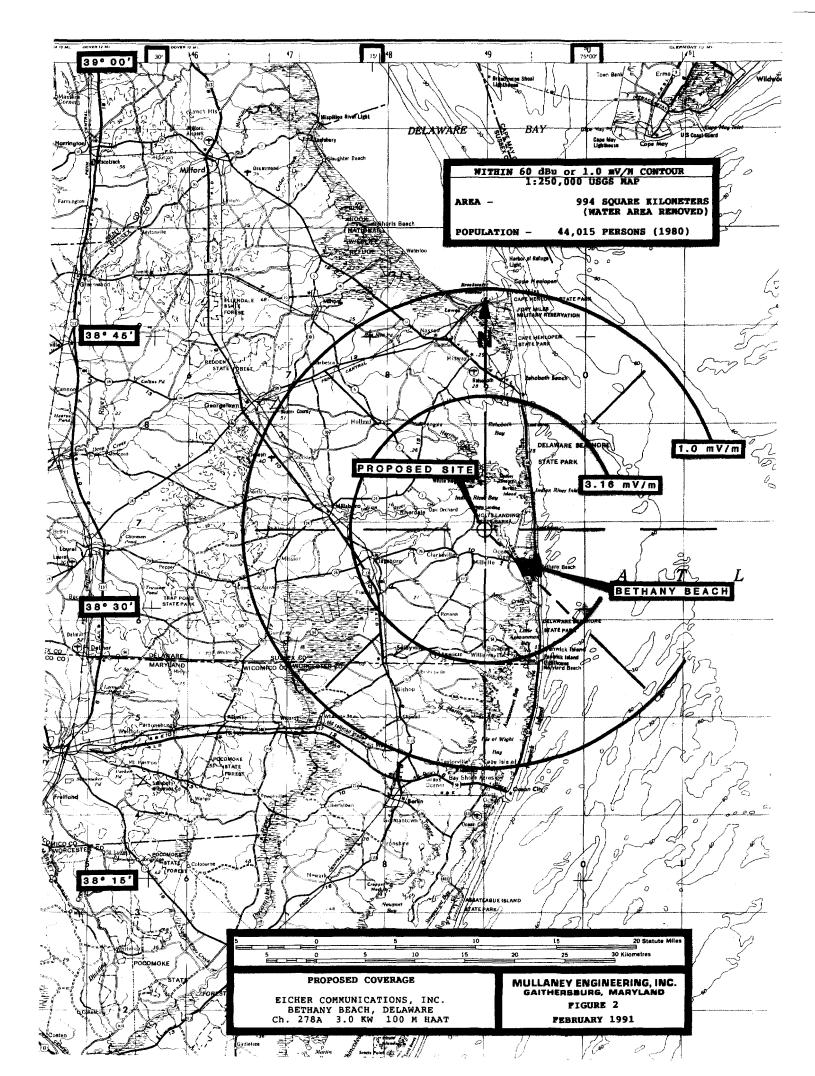
III. SUMMARY:

Eicher Communications, Inc., proposes to construct a new FM facility on Channel 278A at Bethany Beach, Delaware. This application requires processing under Sections 73.213 & 73.215 of the rules. In other respects this engineering proposal is in full compliance with the Commission's Rules.

February 8, 1991.







FM COVERAGE

BETHANY BEACH, DELAWARE

CHANNEL NO. 278 A

FREQUENCY 103.5 MHZ

CENTER OF RADIATION 102.1 METERS AMSL

COORDINATES: 38-34-21 / 75-06-58

							DI	STANCE !	го
	BEARING		3-	16 KM	C.R.	E.R.P.	CON	rours (1	KM)
	DEGREES		AV	ERAGE	HAAT	(KW)	115.0	70.0	60.0
	*****	•	***	*****	*****	*****	****	*****	*****
	0.	*		0.3	101.8	3.	0.7	13.5	24.5
	45.	*		0.1	102.0	3.	0.7	13.5	24.5
	90.	*	#	1.3	100.8	3.	0.7	13.5	24.3
CITY	135.	*	#	2.3	99.9	3.	0.7	13.5	24.1
	180.	*		1.7	100.4	3.	0.7	13.5	24.3
	225.	*		4.6	97.5	3.	0.7	13.4	24.0
	270.	*		3.3	98.8	3.	0.7	13.4	24.1
	315.	*		3.1	99.0	3.	0.7	13.4	24.1
A	VERAGE	*		2.1	100.0	Meters			

115.0 DBU BLANKET CONTOUR IS COMPUTED VIA SECTION 73.318

NOTE:

- AVERAGE ON THIS RADIAL TERMINATES AT WATER.

FEBRUARY 1991

MULLANEY ENGINEERING, INC. GAITHERSBURG, MARYLAND

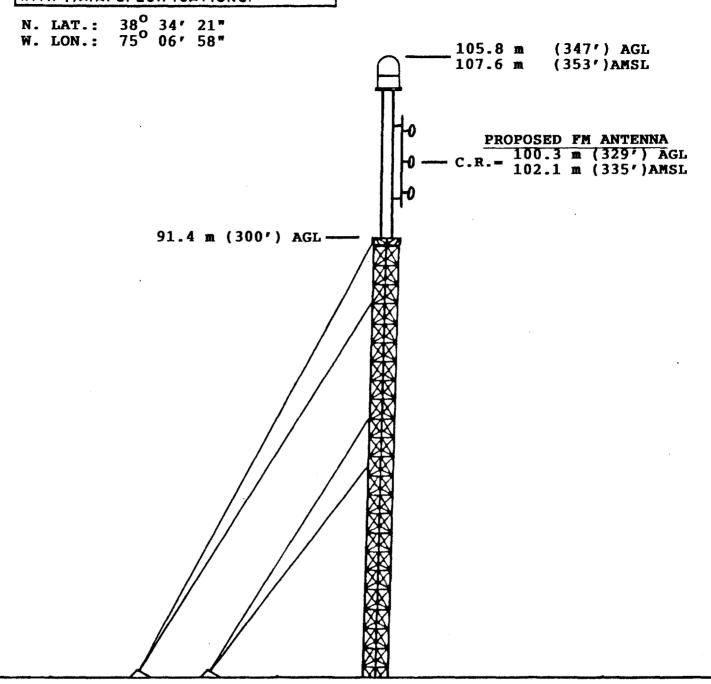
FIGURE 2-A
PROPOSED CONTOURS
(METRIC UNITS)

EICHER COMMUNICATIONS, INC. BETHANY BEACH, DELAWARE Ch. 278A 3.0 KW 100 M HAAT

1.8 m

(6') AMSL

FEBRUARY 1991



MULLANEY ENGINEERING, INC. GAITHERSBURG, MARYLAND

FIGURE 3
VERTICAL TOWER SKETCH

EICHER COMMUNICATIONS, INC. BETHANY BEACH, DELAWARE Ch. 278A 3.0 KW 100 M HAAT

FM Spacing study

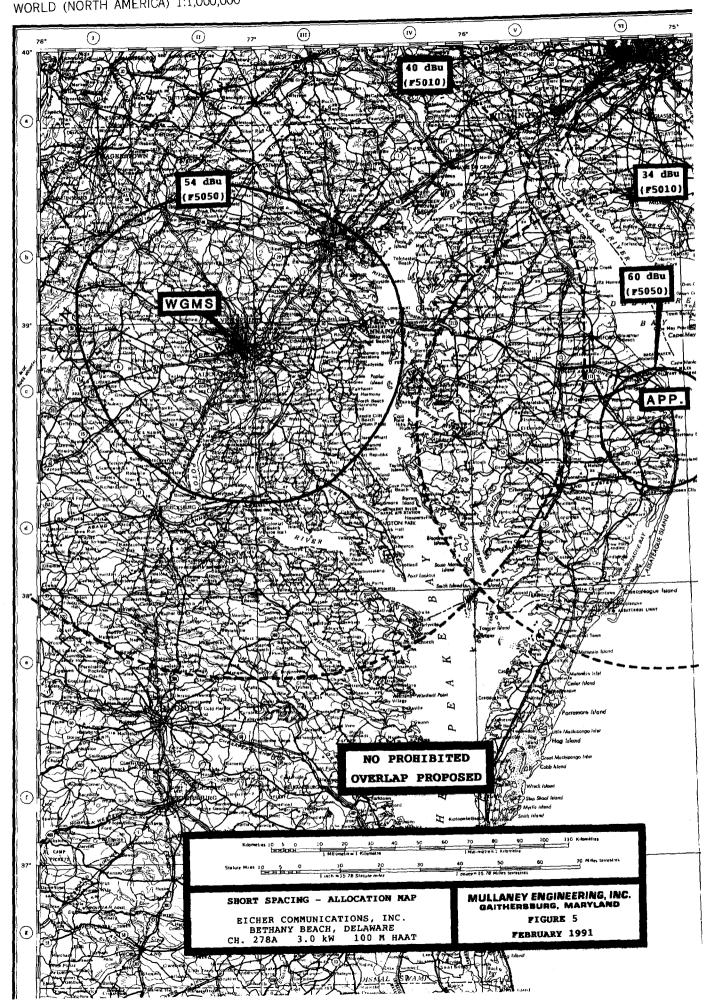
Title: EICHER COMMUNICATIONS, INC Channel 278A (103.5 MHz) Database: DW 01/31/91		Latitude: 38-34-21 Longitude: 75-06-58 Safety zone: 20 km
Call Auth Licensee name City of License St FCC File no.	Chan ERP-kW Latitu Freq EAH-m Longitu	nde Br-to Dist. Req. nde -from (km) (km)
WGMD LIC RESORT BCG CO A LTD PTSH REHOBOTH BEACH DE BLH-6807	224A 3 38-42- 92.7 91 75-11-	-05 333.2 16.04 10 -58 153.2 6.042 CLOSE
WESR LIC EASTERN SHORE RADIO INCO ONLEY-ONANCOCK VA NOTE: QUALIFIES FOR PROCESSING UNDER SE	277B 50 37-43- 103.3 98 75-41- ECTION 73.213 - RE	02 207.7 107.2 113 01 27.4 -5.82 SHORT Q. SEPAR. 105 KM
ALLOC BETHANY BEACH DE DOC-89-498 Granted effective 01/11/91, adopted 11,	278A 38-32- 103.5 75-03- /08/90, Filing wind	22 124.9 6.429 - 20 304.9 ow 01/14-02/13/91
WGMS-FM LIC CLASSICAL ACQUISITION PT WASHINGTON DC BLH-880104KE NOTE: CONTOUR PROTECTION VIA SECTION 73	103.5 155 77-05-	33 102.6 -1.53 SHORT
WGMS-FM APP CLASSICAL ACQUISITION PT WASHINGTON DC BPH-900205IG PET FOR RECON FILED 1/7/91; NOTE: CONTOUR PROTECTION VIA SECTION 73		
WMGM LIC SOUTH JERSEY RADIO INCOR ATLANTIC CITY NJ BLH-850322KK NOTE: QUALIFIES FOR PROCESSING UNDER SE	279B 50DA 39-23- 103.7 106 74-30-	38 29.7 105.3 113 34 210.1 -7.75 SHORT
WOCQ LIC MUSICRADIO OF MARYLAND I BERLIN MD BLH-850423KS NOTE: QUALIFIES FOR PROCESSING UNDER SE	280A 3 38-22- 103.9 100 75-18- CCTION 73.213 - RE	58 219.6 27.35 31 58 39.5 -3.65 SHORT Q. SEPAR. 27 KM
WOCQ APP MUSICRADIO OF MARYLAND I BERLIN MD BPH-9001111B NOTE: WOCQ'S APPLICATION IS DEFECTIVE	103.9 100 75-18-	58 39.5 -3.65 SHORT

>> End of channel 278A study <<

MULLANEY ENGINEERING, INC. GAITHERSBURG, MARYLAND

FIGURE 4 CHANNEL ALLOCATION STUDY

EICHER COMMUNICATIONS, INC. BETHANY BEACH, DELAWARE Ch. 278A 3.0 KW 100 M HAAT



FM COVERAGE

BETHANY BEACH, DELAWARE

CHANNEL NO. 278 A

FREQUENCY 103.5 MHZ

CENTER OF RADIATION 102.1 METERS AMSL

COORDINATES: 38-34-21 / 75-06-58

BEARING DEGREES		3-16 KM AVERAGE	C.R. HAAT	E.R.P. (KW)	DISTAN CONTOUN 60.0	RS (KM) 34.0
*****	* 1	*****	*****	*****	*****	****
					60.0 ******** 24.5 24.5 24.5 24.5 24.5 24.5 24.5 24.	
170. 180. 190. 200. 210. 220. 230. 240. 250. 260. 270.	* * *	1.0 1.7 2.2 3.8 5.0 4.8 5.0 5.2 4.3 2.8 3.3 0.8	101.1 100.4 99.9 98.3 97.1 97.3 97.1 96.9 97.8 99.3 98.8	3. 3. 3. 3. 3. 3.	24.3 24.3 24.1 24.0 23.8 24.0 23.8 24.0 24.1 24.1	98.3 98.2 98.2 97.8 97.7 97.7 97.7 97.8 98.0 98.0
290. 300. 310. 320. 330. 340. 350.	*	2.8 3.6 4.1 2.1 1.2 2.4 0.8	99.3 98.5 98.0 100.0 100.9 99.7 101.3	3. 3. 3. 3. 3.	24.1 24.0 24.0 24.3 24.3 24.1 24.3	98.0 97.8 97.8 98.2 98.3 98.2 98.3

34.0 DBU CONTOUR IS BASED ON F(50,10) CURVE

PROPOSED SHORT SPACING CONTOURS

EICHER COMMUNICATIONS, INC.
BETHANY BEACH, DELAWARE
CH. 278A 3.0 kw 100 m HAAT

MULLANEY ENGINEERING, INC. GAITHERSBURG, MARYLAND FIGURE 5-A FEBRUARY 1991

FM COVERAGE

WGMS - WASHINGTON, DC

CHANNEL NO. 278 B

FREQUENCY 103.5 MHZ

CENTER OF RADIATION 216.7 METERS AMSL

COORDINATES: 38-56-09 / 77-05-33

BEARING DEGREES	,	3-16 KM AVERAGE	C.R. HAAT	E.R.P. (KW)	DISTANCE TO CONTOURS (KM) 54.0 40.0
0.	*	88.5	128.2	50.	62.0 134.7
10.		94.9	121.8	50.	60.8 133.9
20.		99.5	117.2	50.	60.2 133.3
30.	*	93.8	122.9	50.	61.0 134.1
40.		86.5	130.2	50.	62.1 135.0
50.		71.6	145.1	50.	64.4 137.1
60.	*	54.0	162.7	50.	66.6 139.4
70.		42.1	174.6	50.	68.1 141.0
80.		37.1	179.6	50.	68.6 141.6
90.	*	40.0	176.7	50.	68.2 141.3
100.		31.8	184.9	50.	69.0 142.4
110.		28.0	188.7	50.	69.4 142.9
120.	*	28.7	188.0	50.	69.4 142.7
130. 140.		28.1	188.6	50.	69.4 142.9
150.	*	21.8	194.9	50.	70.0 143.7
160.	•	9.0	207.7	50.	71.3 145.3
170.		12.7 33.9	204.0	50.	70.8 144.8
180.	*	51.7	182.8 165.0	50.	68.9 142.1
190.	^	57.0	159.7	50.	66.9 139.7
200.		69.6	147.1	50. 50.	66.3 139.0
210.	*	91.2	125.5	50. 50.	64.7 137.3 61.5 134.4
220.		94.4	122.3	50.	61.0 133.9
230.		97.1	119.6	50.	60.5 133.6
240.	*	104.4	112.3	50.	59.4 132.4
250.		105.8	110.9	50.	59.1 132.3
260.		102.8	113.9	50.	59.5 132.8
270.	*	90.7	126.0	50.	61.5 134.4
280.		80.9	135.8	50.	63.1 135.8
290.		62.6	154.1	50.	65.7 138.2
300.	*	57.8	158.9	50.	66.1 138.9
310.		73.7	143.0	50.	64.1 136.8
320.		81.6	135.1	50.	62.9 135.7
330.	*	90.6	126.1	50.	61.6 134.4
340.		97.1	119.6	50.	60.5 133.6
350.		102.9	113.8	50.	59.5 132.8
AVERAGE	*	66.7	150.0	Meters	

40.0 DBU CONTOUR IS BASED ON F(50,10) CURVE

WGMS - SHORT SPACING CONTOURS

EICHER COMMUNICATIONS, INC.
BETHANY BEACH, DELAWARE
Ch. 278A 3.0 KW 100 M HAAT

MULLANEY ENGINEERING, INC. GAITHERSBURG, MARYLAND

FIGURE 5-B FEBRUARY 1991 WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND IMPRISONMENT.

U.S. CODE, TITLE 18, SECTION 1001.

I certify that the statements in this application are true and correct to the best of my knowledge and belief, and are made in good faith.

Name of Applicant Eicher Communications, Inc.	Signature Claime (. Cichie
Irebruary 11, 1991	Title Elaine C. Eicher, President

FCC NOTICE TO INDIVIDUALS REQUIRED BY THE PRIVACY ACT AND THE PAPERWORK REDUCTION ACT

The solicitation of personal information requested in this application is authorized by the Communications Act of 1934, as amended. The principal purpose for which the information will be used is to determine if the benefit requested is consistent with the public interest. The staff, consisting variously of attorneys, analysts, engineers and applications examiners, will use the information to determine whether the application should be granted, denied, dismissed, or designated for hearing. If all the information is not provided, the application may be returned without action having been taken upon it or its processing may be delayed while a request is made to provide the missing information. Accordingly, every effort should be made to provide all necessary information. Your response is required to obtain the requested authority.

Public reporting burden for this collection of information is estimated to vary from 71 hours 45 minutes to 301 hours 30 minutes with an average of 118 hours 28 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, can be sent to the Federal Communications Commission, Office of Managing Director, Washington, D.C. 20554, and to the Office of Management and Budget, Paperwork Reduction Project (3050-0027), Washington, D.C. 20503.

THE FOREGOING NOTICE IS REQUIRED BY THE PRIVACY ACT OF 1974, P.L. 93-579, DECEMBER 31, 1974, 5 U.S.C. 552a(eX3), AND THE PAPERWORK REDUCTION ACT OF 1980, P.L. 96-511, DECEMBER 11, 1980, 44 U.S.C. 3507.